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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,432

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Christopher Raymond Jones

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,432	Applicant(s) JONES, CHRISTOPHER RAYMOND	
	Examiner PETER F. GODENSCHWAGER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-32,35,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-32,35,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicant's reply filed May 19, 2010 has been fully considered. No claims are amended and claims 20-32, 35, 38, and 39 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-22, 26-32 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777).

Regarding Claims 20, 21, 22, 26, 31, 32, and 39: Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a 75% by weight solids content slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a composition in a homogeneous phase) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking

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(Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Regarding Claim 27: Freeman et al. teaches that the acrylic acid has a MW in the range of 500-12,000 (8:55-60).

Freeman et al. does not teach the specific range of 2000-5000. However, as the disclosed ranges of Sarver et al. encompass the claimed range, a *prima facie* case of obviousness exists for the claimed range (see MPEP 2144.05).

Regarding Claims 28-30: Freeman et al. and Ajoku et al. do not teach the specific or relative amounts of tetrakis (hydroxymethyl) phosphonium salt and dispersant (Freeman et al., 9:64-10:5; Ajoku et al. Pg. 7, Ln. 19 to Pg. 8, Ln.10). However, it is common practice in the art to optimize the absolute and relative amounts of result effective variables such as biocide and

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dispersant (see MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the amount of tetrakis (hydroxymethyl) phosphonium salt added and would have been motivated to do so because Ajoku et al. teaches that it is well within the ordinary skill of one practicing the art to determine the effective amount of biocide for a given system base on various system parameters including size of the system, pH, types of organisms present and the amount of control desired (Pg. 7, Lns. 19-27). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the amount of dispersant present and would have been motivated to do so because Freeman et al. teaches that the amount of dispersant should be added as needed to achieve a minimum in slurry viscosity (9:64-10:5).

Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777) as applied to claim 20 above, and further in view of Ralston (US Pat. No. 3,336,221).

Freeman et al. in view of Ajoku et al. render obvious the composition of claim 20 as set forth above.

Freeman et al. does not teach that the dispersant is a tetrasodium salt of nitrilotris(methylene phosphonate). However, Ralston teaches a tetrasodium salt of nitrilotris(methylene phosphonate) for solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6). Freeman et al. and Ralston are analogous art because they are concerned with a problem of similar technical difficulty, namely forming stable mixtures of calcium carbonate and water using organic dispersants. At the time of the invention, a person of ordinary skill in the art

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would have found it obvious to use the dispersant of Ralston to replace the dispersant of Freeman et al. and would have been motivated to do so because Ralston teaches that the tetrasodium salt of nitrilo-tris(methylene phosphonate) is effective at chelating and solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6), and Freeman et al. teaches that the organic dispersant chosen may be selected from dispersants and dispersing aids generally known in the art for the dispersion of calcium carbonate (8:40-50).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777) and Ralston (US Pat. No. 3,336,221).

Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a composition in a homogeneous phase) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking (Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they

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are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the and tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Freeman et al. does not teach that the dispersant is a tetrasodium salt of nitrilo-tris(methylene phosphonate). However, Ralston teaches a tetrasodium salt of nitrilo-tris(methylene phosphonate) for solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6). Freeman et al. and Ralston are analogous art because they are concerned with a problem of similar technical difficulty, namely forming stable mixtures of calcium carbonate and water using organic dispersants. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the dispersant of Ralston to replace the dispersant of Freeman et al. and would have been motivated to do so because Ralston teaches that the tetrasodium salt of nitrilo-tris(methylene phosphonate) is effective at chelating and solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6), and Freeman et al. teaches that the organic dispersant chosen may be selected from dispersants and dispersing aids generally known in the art for the dispersion of calcium carbonate (8:40-50).

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Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777).

Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a composition in a homogeneous phase) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking (Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the and tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Response to Arguments

Applicant's arguments filed May 19, 2010 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references (i.e. no reason to change the specific requirements of Freeman et al.), the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, as set forth above and in the Office Action mailed December 23, 2009, at the time of the invention, a person of ordinary skill in the art would have found it obvious to add the tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. would be motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Applicant argues that by adding the tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al., one would be ignoring the stated objects of Freeman et al. in describing the steps of the disclosed process. However, the stated objects of Freeman et al. are

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not incompatible with the teaching of Ajoku et al., and Applicant has not provided any evidence or reasoning as to how the teaching of Ajoku et al. would either be inconsistent or destroy the objects of Freeman et al. Furthermore, Freeman et al. specifically states that the object of the invention is for making “high quality PCC [precipitated calcium carbonate] compositions” (abstract). As Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and that the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions and are safe for the environment, such a teaching would help achieve Freeman et al.’s objective of making high quality PCC compositions.

In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that if one of ordinary skill in the art had attempted to simply randomly select a biocide and dispersant he would have found that many could not be successfully used together. However, it should be noted that a showing of unexpected results of the claimed combination must be based on evidence, not argument or speculation (see MPEP 2145). It is further noted that the combination of the dispersant and the biocide as presented in the rejections above have not been selected randomly from the prior art. The biocide (tetrakis (hydroxymethyl)

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phosphonium salts) of Ajoku et al. is specifically disclosed to be effective for calcium carbonate slurries used in paper products, and the motivation for using such a biocide in the method of Freeman et al. has been explicitly presented above and in the Office Action mailed December 23, 2009.

Applicant argues that there is no reason to choose the particular dispersants of claims 23 and 25 for use in combination with a THP salt. However, as set forth above, at the time of the invention, a person of ordinary skill in the art would have found it obvious to use the dispersant of Ralston to replace the dispersant of Freeman et al. and would have been motivated to do so because Ralston teaches that the tetrasodium salt of nitrilo-tris(methylene phosphonate) is effective at chelating and solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6), and Freeman et al. teaches that the organic dispersant chosen may be selected from dispersants and dispersing aids generally known in the art for the dispersion of calcium carbonate (8:40-50). Furthermore, as previously discussed, sufficient motivation has been provided for using the THP salts of Ajoku et al. in the method of Freeman et al. Therefore, sufficient motivation is present, *in the rejection as a whole* for the combination of the THP salt and the particular dispersant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796

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